

Interaction Effect Of Intervention Programme Of Implicit Theories Of Intelligence And Gender On Academic Resilience

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Abstract—The purpose of this study was to ascertain the impact of intervention programme of implicit theories of intelligence on academic resilience of seventh standard students. An experiment on intervention programme of implicit theories of intelligence was conducted on 65 students of standard VII studying in schools affiliated to the SSC Board and with semi-english medium of instruction. It has used two tools, namely, academic resilience scale and (implicit theories of intelligence scale). The instructional programme to enhance implicit theories of intelligence was developed by the researcher. The study used ANCOVA to test the hypotheses. The intervention programme was equally effective in developing academic resilience of seventh standard students, irrespective of their gender. The findings of the study indicate high effect of intervention programme of implicit theories of intelligence on the academic resilience of seventh standard students.

Keywords— Implicit Theory of Intelligence, Academic Resilience, Gender

I. INTRODUCTION

Intelligence is the ability to think, reason and understand instead of doing things automatically or by instinct [1]. The character of a person or place consists of all the qualities they have that make them distinct from other people or places [1]. Since the dawn of time, people have thought differently, acted differently; fared differently from each other [2]. People differ in the way they approach to achievement situations and in the way they perceive themselves within contexts. Some give more importance to performance and results, while for others the experience of learning is more important. One person enjoys challenging tasks while another takes the easy route to avoid it. Some people attribute their successes to their natural ability while others believe they simply worked hard, while some people feel discouraged when they get a low grade, whereas others become inspired to try even harder. Therefore, intelligence and character signify the purpose of quality of education. The quality of education must agree on the goal of true education i.e. Intelligence plus character. The goal to sharpen intellects (scholarship), develop skills both in and outside of the classroom (excellence) and provide learners with opportunities to know the difference between right from wrong and harness the dispositions, to be resilient and handle adversity in a rapidly changing world (character). Quality education enables people to develop all of their

attributes and skills to achieve their potential as human beings and members of society [3].

II. IMPLICIT THEORIES OF INTELLIGENCE

There are two aspects in this model. Students may hold different theories about what is intelligence and how is it manifested in human behaviour. Entity theorists believe that intelligence is a fixed and immutable entity that cannot be changed while incremental theorists believe intelligence as a flexible and malleable dimension that can be enhanced or improved upon. Students holding an entity theory of intelligence are more likely to avoid challenges, ignore feedback as they consider it as a judgment on their ability, withdraw effort, avoid making mistakes and explain negative performance more in terms of their lack of ability than effort. Students holding an incremental theory of intelligence are more likely to embrace challenges and persist, consider feedback as learning opportunity, learn from their mistakes and failures in the process of learning, believe that improved effort is a path to mastery. In a study conducted by Good, Aronson and Inzlicht (2003), intervention on incremental theory contributed immensely in improvement of adolescents' achievement test scores as compared to the control group [4].

III. ACADEMIC RESILIENCE

Closely related to individual psychological resilience,

which examines the capacity for dealing with challenge and adversity, academic resilience is concerned primarily with the relevance of resilience in educational contexts and is defined as “a capacity to overcome acute and/or chronic adversity that is seen as a major threat to a student’s educational development” [5]. Academic resilience is a student ‘s ability to successfully deal with academic stress, pressure and challenges in the academic setting or school life (e.g. poor grades, competing deadlines, exam pressure and stress, difficult school work). Broadly, academic resilience is a child ‘s ability to maintain academic performance at a certain level. There are many factors that influence the academic performance of a student like their studies, friends, teachers, family, vocational choices etc. Inability to deal with all of these effectively by establishing a proper balance can have an impact on students’ well-being and performance. Academic resilience is defined as “High levels of achievement motivation and performance despite the presence of stressful events and conditions that place individuals at risk of doing poorly in school and ultimately dropping out of school” [6]. Thus, students who manage to sail through the difficulties or challenges and succeed are referred to as academically resilient students.

IV. NEED OF THE STUDY

According to Elliot and Dweck (2005), the motivation of each individual student has a large impact on the types of strategies used when faced with academic challenges, which in turn helps in the identification of intelligence as being malleable trait or a trait that cannot be changed [7]. In addition to seeking out challenge, research done by Mangels and his associates (2006) explained that these students also “are more willing to seek remedial activities when they face or experience academic difficulty.” It is the willingness to accept challenge and determination towards mastery of content that distinguishes the incremental theorist from the entity theorist in terms of goals and motivation [8]. Dweck’s (2008) research provides numerous reasons explaining how self-theories play a critical role in the “challenge-seeking, self-regulation, and resilience” in students [9]. Academic resilience means students achieving good educational outcomes despite adversity. For schools, promoting it involves strategic planning and detailed practice involving the whole school community to help vulnerable young people do better than their circumstances might have predicted [10]. Implicit theories of intelligence influence the way one thinks about intelligence which further helps in determining strategies to achieve set goals through determination and motivation. Thus academic resilience and its value as a desirable characteristic in students can help students to perform better, improvise and succeed. The

present study has made an attempt to find out the effectiveness of intervention program of implicit theories of intelligence on academic resilience of seventh standard students. Thus, it is expected to enhance incremental theory of intelligence of students.

V. AIM OF THE STUDY

The broad aim of the research was to study the effect of intervention programme of implicit theories of intelligence and gender on academic resilience.

VI. OBJECTIVES OF THE STUDY

Following are the specific objectives of the study:

1. To compare students’ post-test scores on academic resilience when students’ pre-test scores are controlled.
2. To study the interaction effect of the intervention programme and gender on academic resilience.
3. To study the effect size of the intervention programme and gender on academic resilience.

VII. METHODOLOGY OF THE STUDY

The present study is aimed at ascertaining the interaction effect of implicit theories of intelligence of seventh standard students and their gender on academic resilience. Hence, the methodology selected is the experimental one. In the present investigation, the researcher has used the 2×2 factorial design as follows:

Gender	Female Students	Male Students
Group		
Experimental Group	Mean Score on Academic Resilience	Mean Score on Academic Resilience
Control Group	Mean Score on Academic Resilience	Mean Score on Academic Resilience

VIII. INSTRUCTIONAL MATERIAL

In the present research, the researcher developed an instructional plan based on implicit theories of intelligence. The experimental treatment i.e. the intervention programme to enhance implicit theories of intelligence was conducted in the experimental group. The intervention programme comprised of six modules namely, neuroplasticity, belief about effort, celebrate mistakes, appreciate feedback, praise effort and embrace challenges. The duration of the programme was 23 hours. Time taken for each lesson in a module was approximately sixty minutes. The control group was not provided with any treatment. Each module

comprised of lesson plans which included various activities based on art, craft, games, sports, group learning, quiz, puzzles, singing, dancing, etc. The researcher obtained permission from two selected schools for administering the tests and administering the treatment. The researcher administered the pre-test to both the groups viz. experimental and control groups. After completion of the intervention programme to enhance implicit theories of intelligence in the experimental group, the researcher administered post-test to the students of both the groups.

IX. PARTICIPANTS OF THE STUDY

In the present research, the sample selected consisted of 117 students – both boys and girls from standard VII of Semi- English medium schools situated in Greater Mumbai. The experimental group had 65 students out of which 35 (53.85 %) were boys and 30 were girls (46.15 %). The control group had 52 students out of which 24 (46.15 %) were boys and 28 (53.85 %) were girls. The schools selected for the study were affiliated to the SSC Board, Mumbai with Semi-English medium of instruction. The schools were selected randomly using lottery method. However, the experiment was conducted on intact classes due to reasons beyond the researcher's control.

X. TOOLS USED IN THE STUDY

These are as follows:

1. Academic Resilience Scale: This scale was developed by D'Souza and Pandya (2017). The Academic Resilience Scale comprised of two dimensions Self Efficacy (22 items) and Social Support and Social Competence (10 items). The content validity of the scale was sought by consulting various experts in the field of education. In order to determine the construct validity of the scale, exploratory factor analysis was done. Two factor construct of 32 items explaining 28.466% variance was obtained. The internal consistency reliability of the scale was found to be 0.91. The scoring was done using five-point rating scale. Every item in the scale is marked on a 5-point Likert scale, (not true at all = 1 point," "rarely true = 2 points," "sometimes true = 3 points," "often true = 4 points," and "always true = 5 points).

2. Implicit Theories of Intelligence (Self-Theory): This scale was developed by De Castella and Byrne (2015). It consists of two subscales, namely, Entity Self Beliefs Subscale and Incremental Self Beliefs Subscale with a total eight items. Its reliability and validity were established in the Indian context. Its reliability and validity were established in the Indian context during a pre-pilot study conducted by Pandya (2017). Cronbach's Alpha was 0.87 and Test-Retest Reliability was 0.82. All items were

measured on a 5-point Likert-type scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The scoring is done in such a way that a high score implies incremental theory of intelligence, whereas a low score implies entity theory of intelligence.

XI. TECHNIQUES OF DATA ANALYSIS

The present research used statistical techniques of two-way ANCOVA and wolf's formula. To compare the post-test score on academic resilience after separating out the effect of pre-test scores by gender, the technique of two-way ANCOVA was used. Wolf's formula was used to measure the extent of effectiveness of the intervention programme to enhance the implicit theories of intelligence and gender on the dependent variable, namely, academic resilience.

XII. RESULTS

1. Comparison of Academic Resilience Scores by Intervention and Implicit Theory of Intelligence
 - a) When the technique of one-way ANCOVA was applied to compare the post-test scores on academic resilience after partialling out the effect of pre-test scores, the F-ratio was found to be 69.06 ($p < 0.0001$). The Mean post-test score on academic resilience from the experimental group (143.43) was found to be significantly greater than that of the control group (129.85) after controlling for the pre-test scores using ANCOVA.
2. Comparison of Academic Resilience Scores by Intervention and Gender.
 - a) When the technique of two-way ANCOVA was applied to compare the post-test scores on academic resilience after partialling out the effect of pre-test scores, the F-ratio for treatment effect was found to be 67.9 which is significant. ($P < 0.0001$). The mean post-test score on academic resilience of experimental group (EG) is 143.43 which is greater than 129.86, mean post test score on academic resilience of the control group (CG). It states that the instructional programme to enhance implicit theories of intelligence is effective in developing academic resilience of students from the experimental group.
 - b) The F-ratio for gender effect and interaction effect was not significant. This implies that the intervention programme of implicit theories of intelligence was found to be equally effective in developing academic resilience for both female students and male students of experimental group.

The interaction effect of the intervention programme and the gender on academic resilience are shown in the

following figure.

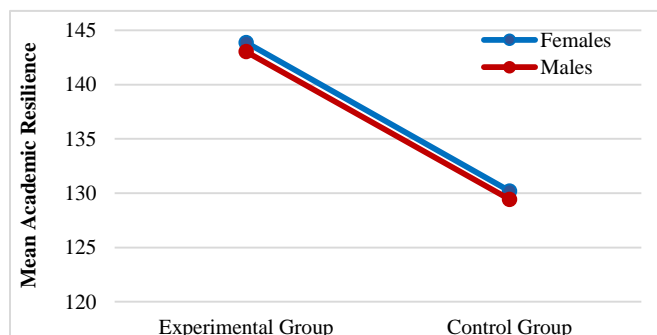


Fig 1

3. Computation of the Magnitude of the Effect Size Using Wolf's Formula.

Table 1: Effect Size

Intervention Programme (Independent Variable) on Academic Resilience. (Dependent Variable)		Gender (Moderator Variable) on Academic Resilience. (Dependent Variable)	
Effect	Magnitude	Effect	Magnitude
1.55	High	1.54	High

XIII. CONCLUSIONS

1. The intervention programme of implicit theories of intelligence has a substantial impact in enhancing the academic resilience of students.
2. The intervention programme of implicit theories of intelligence was found to be equally effective in developing academic resilience of female students and male students of experimental group.
3. The effect size of the treatment i.e. intervention programme of implicit theories of intelligence on academic resilience of students was found to be 1.55 which is high in magnitude. Thus it can be concluded that the intervention programme has a high effect on academic resilience of seventh standard students.

XIV. DISCUSSION

The present study contributed to an understanding of how the intervention programme to enhance implicit theories of intelligence influenced the academic resilience of students irrespective of their gender. The present study's findings are in alignment with views of Appel (2014) that states "We need to change awareness amongst girls and boys about these gender expectations and stereotypes. And we need to target also teachers and the pedagogues that are unaware of the gender-based behaviours that they are producing. What we want to do is give the girls and boys a free choice". The

intervention programme to enhance implicit theories of intelligence was uniformly effective in enhancing academic resilience of both females and males from experimental group as the activities planned by the researcher in each module of the instructional programme included examples of both males and females shared during the intervention to keep students motivated to learn and stay away from gender biasness in learning.

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